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CORRESPONDENCE.

[Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.]

Observations on the Pterylosis of Certain Picidæ.

TO THE EDITORS OF THE AUK:—

Dear Sirs:—On the 25th of last August, 'Forest and Stream' very kindly published a contribution of mine entitled 'A Chapter on Pterylography,' which was illustrated by five figures. That paper pretended to be nothing more than a good guide to those interested in pterylography, and who desired to know something of one of the best characters we find in birds to assist us in their classification. It was also written with the hope that those who had the opportunity might more carefully examine into this character among our own birds, and in time be enabled to make some useful contributions to the subject.

In the 'Chapter' I refer to, my chief examples were chosen from the Woodpeckers, and in the course of my demonstrations of the *apteria* and *pterylæ*, as found among certain forms of those birds, a number of interesting and important facts came to light. Since then, I have carefully examined the pterylosis in the genus *Colaptes*, and compared it with additional specimens of *Dryobates* and *Sphyrapicus*. Had I been ready to pluck certain tempting specimens from the Pacific coast region, which I have by me in alcohol, and for which I am under great obligations to Mr. G. Frean Morcom of Chicago, and Mr. F. Stephens of San Diego, Cal., I might have thrown perhaps still more light upon this subject, but these specimens I am reserving for a future and more extended memoir upon the Pici. At any rate I would like to review in the present connection some of my observations upon the pterylosis of the American Picidæ, and bring the facts in question more directly to the notice of working ornithologists.

Nitzsch in his classical volume on 'Pterylography' (English Trans.) confesses to have been able to examine only a few species of Woodpeckers, so his account of the pterylosis in this group of birds is not as full as it might otherwise have been. His investigations were apparently confined to *Picus luridus* (a species of Sumatran Woodpecker, first described by him, and which lacked the small "inner humeral tract"), *P. tridactylus*, *P. carolinus*, *P. bengalensis*, *P. auratus*, *P. medius*, *P. macei*, *P. martius*, together with *Picumnus minutus*, and *Yunx torquilla*.

In his descriptions of the pterylosis in Pici, this eminent observer calls attention to the submedian, longitudinal capital apterium, extending along the elevation caused by the underlying limbs of the prolonged hyoidean apparatus. This is shown at *b*, *c*, in Fig. 2 of the present letter.

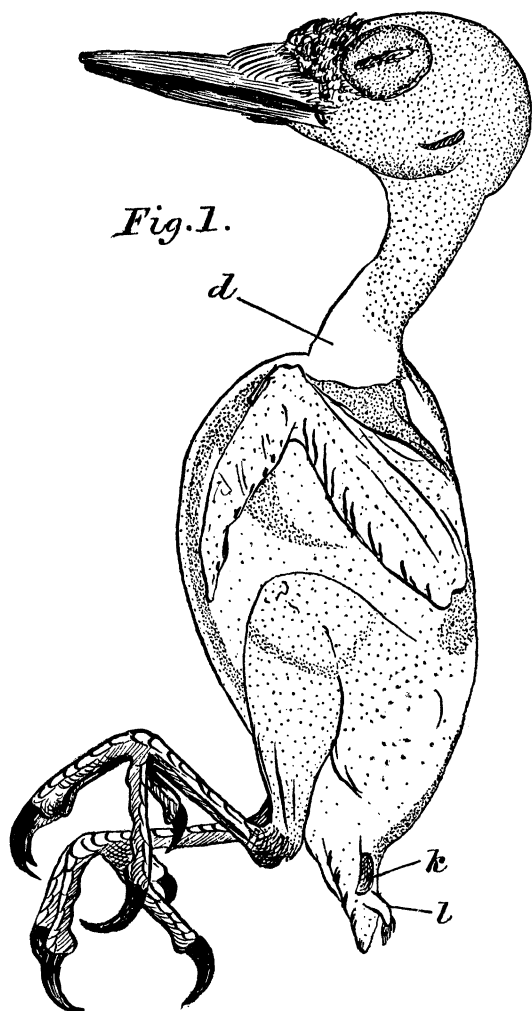


FIGURE 1.—Left lateral view of a plucked specimen of Harris's Woodpecker (*D. v. harrisii*), ad. ♂, life size, by the author, from the specimen; *d*, upperpart of the 'inferior space' (*Apt. mesogastræi*); *k*, the uropygial gland of the left side; *l*, its external papilla with opening at its summit, which is also tufted.

Nitzsch says of it, that "On the head the vertical space is especially remarkable, a band destitute of contour-feathers extending from the base of the beak, over the forehead to the occiput, which I find in all Woodpeckers" (p. 96). As I have already shown in my 'Forest and Stream' article, and here reproduced in Fig. 5, this feature is totally absent in

Sphyrapicus v. nuchalis, and it is a well-known fact that in this Woodpecker the limbs of the hyoid arches are nearly or quite as short as we find them in ordinary birds.

Another apterium, also alluded to by Nitzsch, and occurring on the sides of the head, is the temporal space; this small, subcircular, naked area, when present, is found just behind the eye and above the aperture of the ear. It was not observed by me in the specimen of Harris's Woodpecker shown in Fig. 1, but recent and more extended observations lead me to believe that it is a quite constant pterylographic character in this species. On the other hand, I have yet to find it present in *Sphyrapicus*, although I do not positively deny that there may be exceptions to this rule likewise. It is invariably present in *Colaptes*, a picine form which also has the longitudinal capital apterium well marked. The remainder of the head in Pici, so far as the writer has examined them, is always found to be densely feathered (Fig 4).

Among Woodpeckers the spinal tract offers us many and important variations (see Fig. 2, *g*, *h*, *j*, and Fig. 5). Nitzsch discovered so many differences in this particular in the species he examined that it will be impossible to enumerate them here. Figure 2 shows very well the distribution of the spinal feather tract in *D. v. harrisii*, and Fig. 5, the interesting departure therefrom in *Sphyrapicus*, in which latter species the arrangement is much the same as we find it to be in many typical passerine birds. In *Picus viridis* an interruption takes place between the narrow median neck strip of the spinal tract and the 'saddle area' (*h*), and in *Colaptes* this feature is likewise fairly well marked. *Colaptes* again has the posterior moiety of the spinal tract, just as we find it to exist in *Dryobates*, as shown in Figure 2, at *j*. As far as I know all Woodpeckers have a strongly tufted oil gland (Fig. 1, *l*).

Faintly marked as a rule in all Pici, the *femoral tract* in *Colaptes* agrees in being but feebly traceable by the presence, on either side, of a few downy feathers, and at the most not more than some three or four contour ones. Like *Dryobates*, however, *Colaptes* possesses on either leg, a well-defined 'crural tract,' occupying a position similar to the one we find it in in the majority of Woodpeckers (Fig. 2, *i*). Nitzsch, as I have elsewhere stated, found the 'inner humeral tract' (Fig. 2. *f*) absent only in the Sumatran species, which he described as *Picus luridus*; this characteristic and sharply defined though small feather area is present in all species of *Colaptes*, as it is in every American Woodpecker that the writer has ever submitted to a pterylographic examination. On the outer side of this smaller humeral tract we also find, in every species of Woodpecker, the larger 'humeral tract' proper, which, as is usual, passes obliquely across the region of either shoulder, as shown in Figure 2 at *e*, and in Figure 5, where it is likewise well marked. If we carefully examine, we shall find very sparsely appearing feathers, for the most part downy ones, showing themselves here and there on the apteria among the dorsal areas. No special description is needed here for the 'alar tracts' in these birds, and we can next turn to the ventral aspects of the specimens under consideration. Here we find the feather areas very well defined, more espe-

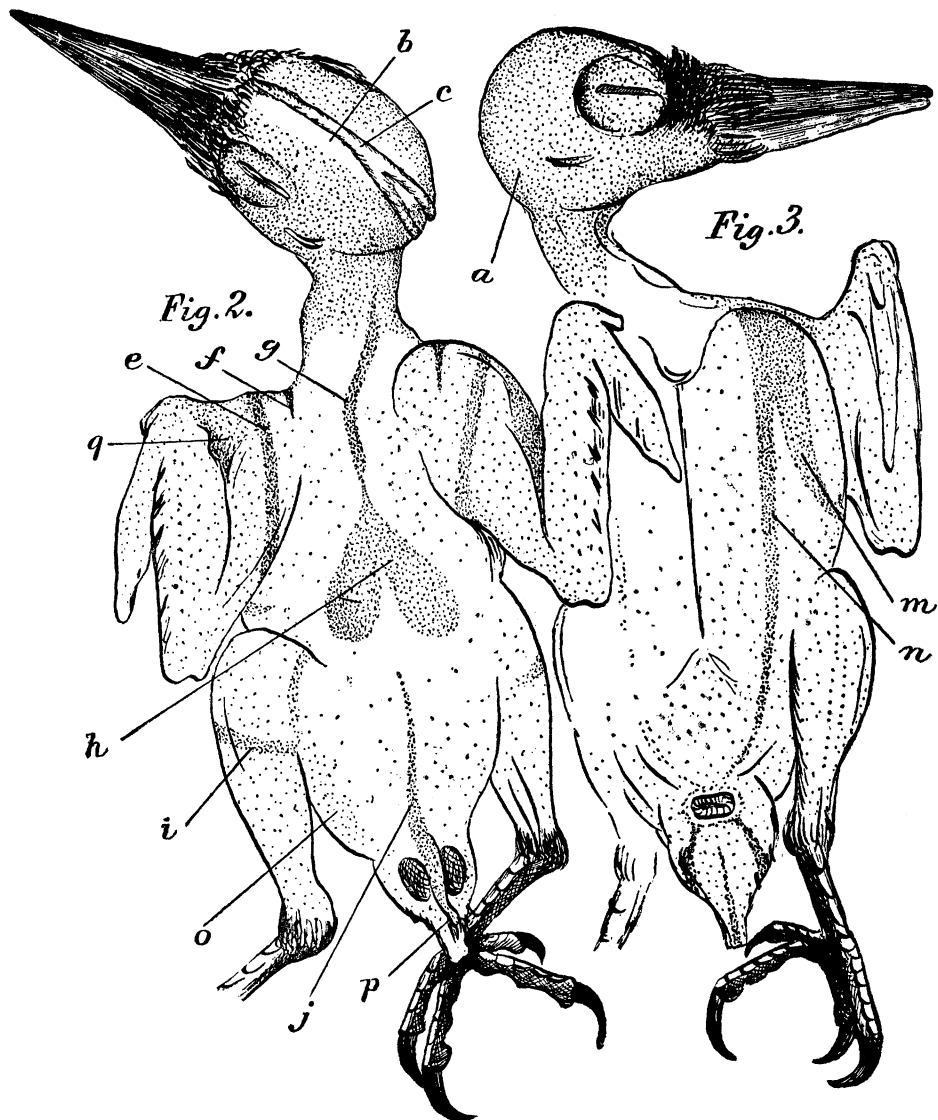


FIGURE 2.—Dorsal aspect of the same specimen shown in Figure 1; *b*, capital apterium; *c*, the median (at the point indicated) elevation of the skin caused by the epi-branchials of the hyoidean apparatus beneath it; *g*, spinal tract; *f*, inner humeral tract; *h*, lower dilation of spinal tract (the saddle); *j*, lower part of spinal tract (rump tract); *i*, crural tract; *o*, femoral tract (very faintly seen in a Woodpecker); *g*, alar tract.

FIGURE 3.—Anterior or ventral aspect of the same specimen, with its head turned to the left; *a*, capital tract; *n*, the ventral tract, and *m*, its external branch. From nature, by the author.

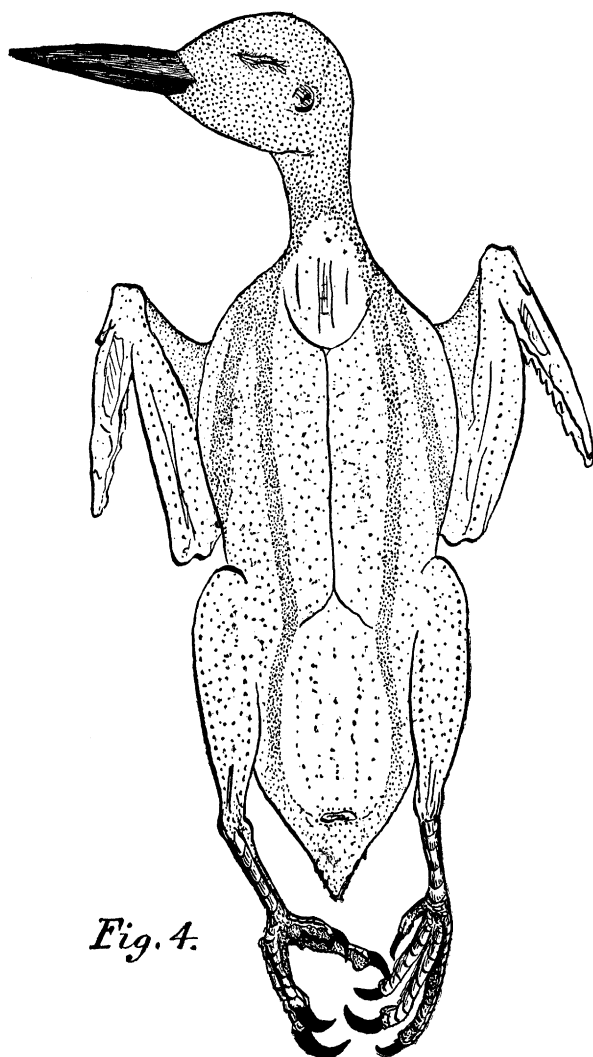


Fig. 4.

FIGURE 4.—Ventral view of a plucked specimen of the Red-naped Woodpecker (*Sphyrapicus v. nuchalis*), showing its pterylosis. From nature, life size, by the author.

cially the 'ventral tract' and its peculiar external branch (Fig. 3, *m.* and *n*).

It will be seen that in *Dryobates* the main ventral tract is very broad near the summit of the shoulder, and continues to be so until we arrive at the bifurcation with its external branch *m*, which latter curves out towards

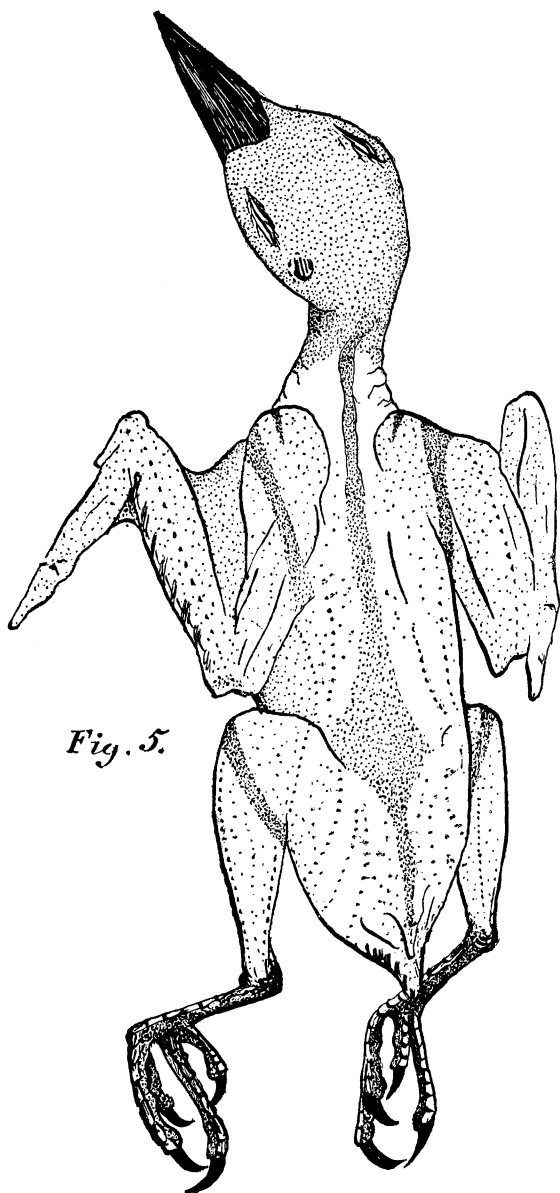


Fig. 5.

FIGURE 5.—Dorsal aspect of the same specimen of *Sphyrapicus* shown in Fig. 4, designed to illustrate its pterylosis. Drawn by the author; life size.

the side as a sharp-pointed and handsome hook (see also Fig. 1), terminating in a free extremity. Figure 4 shows this arrangement to be quite different in *Sphyrapicus*, where the form of the external branch is narrower, and the bifurcation higher up towards the neck of the bird. It too, however, terminates in a free-pointed extremity at the side. The abdominal part of the main ventral tract is much stronger in *Sphyrapicus* than it is in Harris's Woodpecker, in which latter species it usually dwindles to a single row of contour-feathers before arriving at the vent. Both species have the aperture of the vent completely surrounded by a single row of small contour-feathers, while in *Dryobates* there are posterior to this region a mid-coccygeal pteryla, with an oblique lateral one on each side of it (Fig. 3). These I have designated as the 'postventral tracts.'

Colaptes has, both in arrangement and form, its ventral and postventral tracts almost identically the same as we find them in the genus *Dryobates*.

Nitzsch, alluding to the rectrices and remiges in the Woodpeckers, says "twelve tail-feathers, but the two outer ones small and bent in between the two preceding ones," and "the wings bear from nineteen to twenty-one remiges, but always ten on the pinion, of which the first is rather short, the second is likewise shorter than the following ones, but the third is sometimes equal to the fourth and fifth, and with them the longest, and sometimes exceeded by the fourth, fifth and sixth, which are then of equal length."

Persons interested in the study of this subject may well consult besides Nitzsch's 'Pterylography' certain important papers in the early issues of the 'Proceedings' of the Zoölogical Society of London.

Faithfully yours,

R. W. SHUFELDT.

Fort Wingate, New Mexico,
21st Feb. 1888.

Polydactylism in Birds.

TO THE EDITORS OF THE AUK:—

Sirs:—My attention has been directed to a short article in 'The Auk' (Vol. IV, No. 4, pp. 331-333, Oct. 1887), on 'Ornithological Curiosities.—A Hawk with nine toes, and a Bobolink with spurs on its wings.' I do not profess to be an ornithologist, though much interested in the subject, and something of an observer of bird life; I prepare this note as a teratologist. I am much pleased with the report of the cases of the supernumerary development by Mr. Henry K. Coale, and hope his example will be followed by others from numerous observers all over the land.

In my somewhat extensive researches for the purpose of collecting and classifying the bibliography and references relating to the 'The Material of Teratology,' I have been surprised at the infrequency as well as the meagreness of reports, and the almost absence of even incidental mention of cases of supernumerary and duplex development in birds. Such as